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"A KNOWLEDGE COMMUNITY FOR THE SOCIETY OF ACTUARIES"

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Back to the Numbers?

by Tia Goss Sawhney

There is a transformation underway in the actuarial world to expand the actuarial skill repertoire from a reliance on technical skills to a broad array of technical, business and people skills. The Actuary of the Future Section is a part of that transformation.

The assumption is that we as actuaries need to have additional business and people skills in order to securely hold our position as "masters of risk"/"kings and queens of the numbers" and to assume leadership roles within the insurance industry. We do. But while business and people skills add to the actuarial value proposition, they are not sufficient to uniquely position actuaries in the insurance industry. To maintain our actuarial identity we must maintain a firm grasp on risk and numbers via our technical skills.

My concern is that in the health insurance area (my area of expertise), and likely in other areas of actuarial work, actuaries are losing control of the analysis of risk and numbers to other professional disciplines, disciplines who have mastered technical skills that we have all but ignored. Unless we upgrade our technical skills, our domain and employment prospects will steadily shrink.

The two broad areas of technical skills that I would like to briefly address in this article are databases and predictive modeling.

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A Look at the Actuary of the Future Section Membership

by Sally Chan

The goal of the Actuary of the Future Section (AOF) is to identify and promote new opportunities for actuaries to advance in their careers. Since its inception in 1992, the section has made good progress in attracting new members, and involving our volunteers in activities that have made a significant impact on the profession. The Personal Actuary Task Force, Younger Actuaries Network and our environmental scanning initiative are three examples of the outstanding volunteerism efforts of our members.

But since we all know the past is not an indicator of future performance, our partners at the SOA have asked, in conjunction with our 2009 planning, that we develop some key metrics for how we want to manage our section, and to then set objectives in these key areas.

Since our greatest asset is our membership, it seemed obvious that several of the key metrics should relate to our membership levels, retention rates, etc., but in order to put together meaningful objectives and develop a basis for management and measurement, some work needed to be done to understand our current membership, and see ourselves as others would.

Membership Study

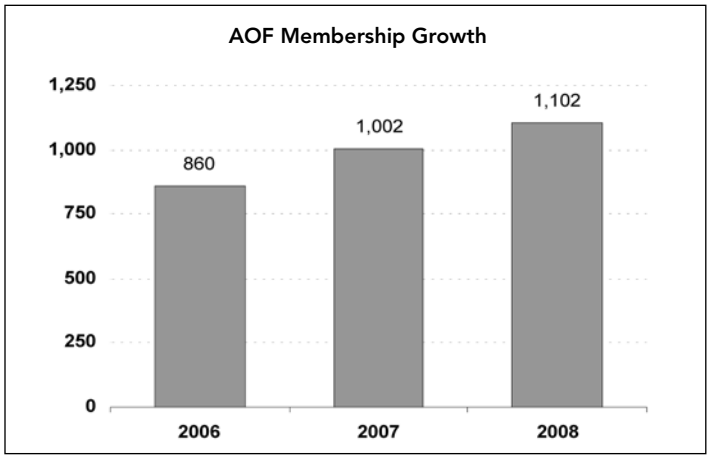
To help section leadership address some of these questions, we studied the SOA membership database. As of July 2008, the AOF Section had slightly over 1,100 members, which constitutes 4 percent of total SOA membership. We also found that our members have several predominant characteristics. AOF members are younger, more recently credentialed, and tend to work in insurance organizations or consulting firms and possess relatively fewer years of experience.

Three Great Things to Know About Your Section

The membership study revealed three great characteristics of the AOF Section and its members:

1. Membership growth!

Since the beginning of 2006, AOF membership has increased approximately 22 percent. The growth rate is stellar when compared to the average annual SOA membership growth rate of 3 percent. This fact confirms that our promotional efforts are paying off and members are seeing the benefits of joining the AOF.



2. *Attracting members that stand to benefit from our goal.*
Given that our mission is to identify and promote future roles for actuaries, it would seem that younger and earlier-career actuaries would benefit most from the offerings of the AOF. Our study shows the AOF Section attracts a higher proportion of actuaries aged 40 or younger, and on average our members have four fewer years of actuarial experience than the rest of the SOA. These findings suggest that our current marketing efforts are targeting and benefiting the right audience.

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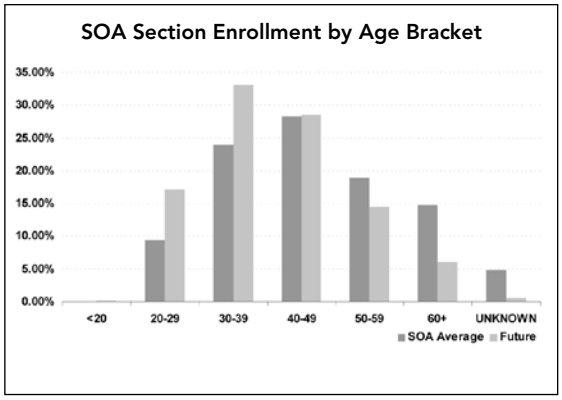
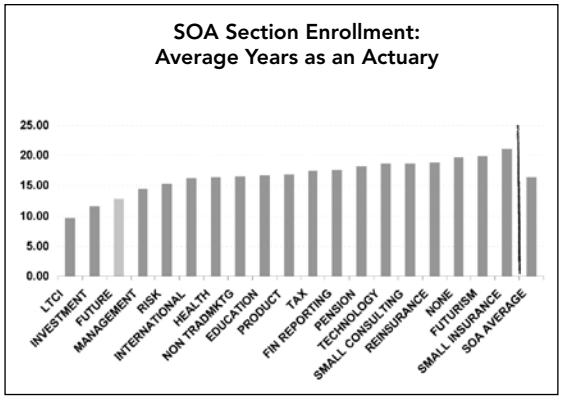
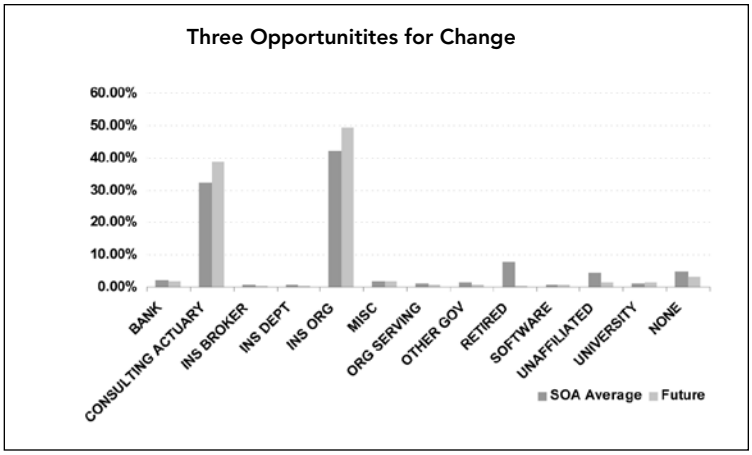




3. *Increased awareness of those in traditional roles.*
We found that close to 50 percent of AOF members work in insurance companies, and presumably a large proportion of these members are in traditional actuarial roles. Joining the AOF helps to increase their awareness on changes in the actuarial profession and helps develop the skills necessary to be successful in those new roles. With a growing demand for actuarial expertise in the less traditional areas, such awareness will become increasingly important for actuaries to remain aware of competitive opportunities in the marketplace.



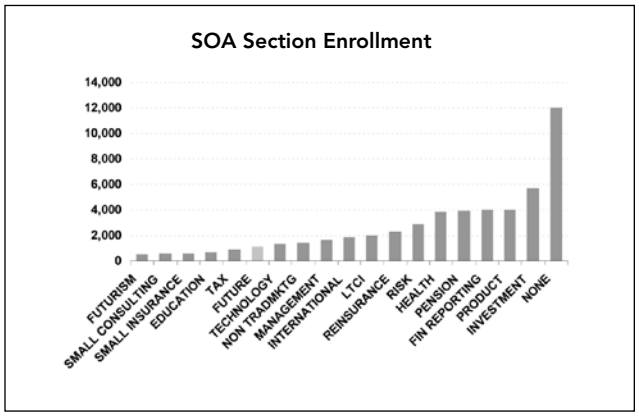
Three Opportunities for Change

The membership study also highlighted areas where we felt that some additional focus could increase the abilities of our section to further our goals.

1. *Spur the efforts designed to support increased growth.*
Despite our recent membership growth, the AOF is relatively small in size when compared to SOA section averages. In addition, we found that our membership renewal rate over the past year was 77

percent, which is about 5 percent shy of the section average. It is clear that to continue to meet our objectives as a section, we need to remain on a growth path. To do so we need to enhance the member experience to increase our retention rates, while devising marketing efforts to attract new members.

2. *Increase SOA membership involvement in section efforts.*
The preceding figure highlights a currently untapped resource. Among the total 28,065 SOA members, 12,005 members (or 43 percent) are not enrolled in any section! Even capturing just 1 percent of those uninvolved members would be a huge boost to our section's capabilities.



3. *Encourage cross-sectional involvement.*
Our study indicated that 32 percent of SOA members belong to more than one section. Finding ways to enroll members who are currently involved in sections with a more functional focus (e.g. investments or product development) into our section would be a great way to increase our view across the silos of traditional work.

SOA Cross-Sectional Enrollment

# Sections Enrolled	# Members	Cumulative %
0	12,005	42.8%
1	7,231	68.5%
2	3,275	80.2%
3+	5,554	100.0%
Total	**28,065**	

What's Ahead?

Now that we know a little bit more about ourselves and where some of our opportunities lie, developing a focused approach to our section membership activities should improve our ability to meet or exceed our membership-related goals. One of our broader goals is to achieve a growth in membership of at least 10 percent each year.

Initial development of a focused marketing approach targeting people who have characteristics similar to those we observed in our current membership, (i.e. young actuaries working in insurance organizations and consulting firms), but not involved in any sections is underway. Early indications are that about 3,000 SOA members fit this description and success here will be instrumental to increasing our membership. To jump-start our efforts, we have offered a free one-year membership to those who have obtained their CERA credential as a way of introducing them to the section.

In addition to bringing in new members, we will also focus our attention on retaining existing members by maintaining or improving the current membership experience. Currently the AOF has several great programs that benefit members' views on future actuarial opportunities. Examples include the Actuarial Pioneer program (an initiative responsible for sharing stories of well-known, innovative actuaries), Younger Actuaries Network (a network committed to providing career support to early-career actuaries), Environmental Scanning (an initiative geared towards identifying the future of the actuarial profession), support of the new CERA credential, and great events at many of the SOA meetings designed to offer important networking and professional development opportunities for new actuaries.

Other marketing efforts are expected to roll out in the next few months. Make sure you tell your colleagues who aren't involved to look out for them, and consider the benefits!

For more information about the Actuary of the Future Section, section programs or volunteer opportunities, visit the SOA Web site (www.soa.org) or contact any of the council members directly.

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Databases

Actuaries perform a lot of data analysis. All data analysis starts with data. Data is stored in databases. So actuaries must know a lot about databases, right? Wrong. What is a normalized database? An inner join? An outer join? SQL? If you cannot answer these questions, you do not know the fundamentals of database design and querying.

Actuaries, as a rule, do not understand the fundamentals of database design and querying. Therefore we are often dependent on IT people to spoon-feed us our data. And when we discover anomalies in the data, we are not well-equipped to have a peer-to-peer discussion with the IT people regarding the issues. This makes the work that we do more difficult than it would be if we knew more about databases.

Work efficiency, however, is not the biggest problem. The biggest problem is that a fundamental understanding of databases is all but required to participate in the IT world. Although there is a whole lot going on in the IT world that should involve actuaries, a lack of database knowledge is precluding us from involvement.

Since we claim to be power users of insurance data, we should be intimately involved in the insurance data supply chain. We are not. We should also be intimately involved in data warehousing, analysis, and reporting projects, also often known as business intelligence (BI) initiatives. We are not. Furthermore, we risk losing control of certain tasks that have historically been clearly within the actuarial domain, such as reserve and trend analysis as, sooner or later, they will be embedded into business intelligence systems—likely without our involvement.

The software companies that are creating the software that will run tomorrow's IT/BI systems are virtually devoid of actuaries. As of July 2008, there are only 194 FSAs and ASAs who list their primary employment type as "software developer/vendor". Most of them are employed by smaller companies that specialize in "actuarial software"—for example, seven are employed by PolySystems. (In addition PolySystems employs another 32 actuaries who list their employment as "consulting actuary".)

Even though nearly every large, multi-industry software development company has an "insurance vertical" dedicated to serving the data and data analysis needs of insurance companies, software company employment outside the specialized actuarial companies is sparse.

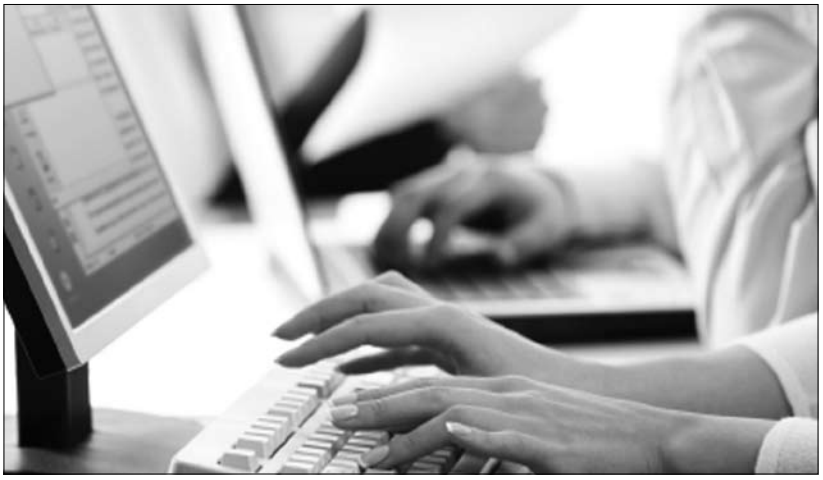
The software giant Accenture, with more than 100,000 employees, employs only four (one FSA and three ASAs) of the above 194 software actuaries. IBM and Microsoft do not employ any. SAS employs two (both ASAs). CSC appears to be the only large, multi-industry software company employing more than two FSAs in software roles (seven FSAs and 10 ASAs).

Predictive Modeling

Predictive modeling refers to an evolving collection of statistical tools used to examine mountains of historical data in order to discern patterns that can be used to make future predictions. Unlike classic actuarial "slice-and-dice" methods, predictive modeling tools examine large numbers of potential predictive variables simultaneously. Furthermore, measures of risk and confidence are an integral part of the tools.

Predictive modeling is one component of the business intelligence domain discussed above. Predictive modeling is well embedded in other industries, including property and casualty insurance. It is, however, just starting to make inroads into life and health insurance. Although it offers the potential for much better insight into health insurance data, it is a domain in which most health actuaries do not have expertise. Health insurance predictive modeling work is instead being done by statisticians.

Even if we accept that statisticians, not actuaries, will be the owners of the predictive modeling tools (but why should we?), most actuaries are not familiar enough with predictive modeling to even have an intelligent conversation about the methods and limitations of the resulting analysis. We there-



fore accept the analysis at face value—a dangerous proposition.

Our knowledge is so limited that I have found that many actuaries I know cannot even define predictive modeling. Actuaries build models that make predictions, usually based on deterministic assumptions, often in Excel, and are quite surprised that this is not what statisticians mean by "predictive modeling". Other actuaries confuse automated rules systems with predictive modeling systems. Although predictive modeling tools can be used to create the rules which are embedded in automated rules systems, rules systems can exist without any use of predictive modeling tools.

The bottom line is that statisticians, armed with superior tools for examining health insurance data, tools that we do not understand, let alone know how to effectively use, are posed to displace actuaries as the preferred partners for creating "real-world solutions for complex problems"* in the health insurance domain.

Conclusion

Databases and predictive modeling as topical areas share something very critical to this discussion: they are not included in the SOA exam syllabus. Passing actuarial exams while juggling the demands of work consumes us. As a result we often don't seek to learn technical skills that are neither on the syllabus nor perceived as essential to day-to-day actuarial work.

This complacency has two results. The first is that we do not expand our work into arenas where we should be well-equipped to compete. It has long been observed that actuaries intrinsically have better technical skills than people and business skills. Therefore, it should be a lot easier to expand our technical skills into data and statistical domains than to make us into business-minded extroverts!

Furthermore, offense is necessary defense! Unless we expand our skills, we will not be able to effectively compete against the other professionals who are expanding their skills into our domain. As a result, our domain will steadily shrink. We should not let that happen.

*A tagline on the www.soa.org home page.

Predicting The Future; Predicting Mortality

by Gene Held

In 1932, 27 years after his famous equation was published, Albert Einstein said, "There is not the slightest indication that nuclear energy will ever be obtainable. It would mean that the atom would have to be shattered at will." By 1939 fission had been discovered, and on July 16, 1945 the world's first atomic bomb was exploded at the Trinity Site in White Sands, New Mexico—which all goes to show that, "Prediction is very difficult, especially if it's about the future," as his frequent sparring partner, Niels Bohr, wryly observed. Very bright people can be wrong about the future, even when dealing with their professed area of expertise.

Actuaries, of course, are not in the business of predicting the future. We are in the risk management business, and while the models we build and the scenarios we project become ever more sophisticated with each new generation of actuary, we do not endeavor to predict the future as much as to model possible outcomes. The issue, of course, lies in defining the set of possible outcomes. How is that to be achieved? Through regression analysis? Through time series? Through stochastic methods? While powerful, many of these methods do not deal with the truly game-changing paradigm shifts described by the science historian Thomas Kuhn. Those quantum leaps into new realms often come from unexpected directions. How, then, does one go about acquiring a broad enough view of the present to anticipate such changes in the future? On the surface, such a task appears all but impossible, and even the greatest of minds have been humbled and made to appear foolish when attempting to do so.

Yet, it is a time-honored practice, dating back probably to the earliest hominid species to make the connection between cause and effect. The early scenes of the late Arthur C. Clarke's 2001: *A Space Odyssey* have always struck me as beautifully illustrative of that hypothesized moment. In one scene, a tribe of pre-humans is driven from a critical watering hole by a stronger band. After the appearance of the enigmatic and surrealistic black monolith (a metaphor for change), one of the creatures sits mindlessly pounding a pile of animal bones with a femur. Each time he strikes one of the bones it is thrown higher into the air. You can almost see the gears turning in the creature's mind as he first makes the *posteriori* connection of, "I did this, and then this happened," and then the second, still grander, *a priori* leap, "If I do this, then this will happen." Following that brief, liminal moment, he then begins to pound the pile purposefully, sending the bone higher and higher, his instant of enlightenment having given him a new tool.

Subsequently, this new found technology is put to use in both constructive and destructive ways, a subcurrent that runs throughout the movie. On the one hand, the club is used to kill a tapir to provide sustenance. On the other, it is used to murder those not of his tribe and drive them away from the watering hole. The cause-and-effect connection that allowed the creature to see into the future has provided an edge in the fight for survival, yet the mere existence of such power threatens the future of his own kind in new and different ways. Ways, ironically, that he could not have predicted.

But our view of the future need not be merely an ephemeral parting of the veil. As the political theorist John Schaar once said, "The future is not a result of choices among alternative paths offered by the present, but a place that is created—created first in mind and will, created next in activity. The future is not some place we are going to, but one we are creating. The paths to it are not found but made, and the activity of making them changes both the maker and the destination."

This is a wonderfully proactive way of looking at things. Rather than passively accepting the future as something that happens to us, rather than viewing it as an encounter with predetermined alternatives, we embrace it as our own creation. It is as if you are standing on a path, the present, which stops at your feet, and are gazing out over a field. You create the future first in your mind by deciding to make the present extend in a particular direction. "*I* am going to make the road *go there*." You create it next in your will, "I am going to make the road go there." You create it finally through activity: you pick up the sickle and start swinging.

But your view of the future was hazy and imperfect at best, and you could not see all the obstacles

awaiting you. You arrive at a large boulder and must go around it, thereby changing your path. Or you reach a river and are forced to build a bridge, or a boat, or learn to swim, thereby becoming changed by the very activity of creating the future.

So in one sense, predicting the future becomes an exercise in learning how it is created. Kuhn's *The Structure of Scientific Revolutions* serves as an excellent guide here. In it, he describes how normal science progresses, how crises emerge, lead to revolution, and are resolved in favor of a new paradigm.

On a different level, there are the tools employed in the process of trying to make those predictions. There is a large body of literature addressing this subject, ranging from the Delphi method of iterative rounds of questions posed to a panel of independent experts, to techniques employed by the beltway think-tanks in Washington that advise governments and global corporations.

Kahneman and Tversky developed the theory behind Reference Class Forecasting, which uses the outcomes of a reference class to predict the outcome of similar situations. (The work ultimately led to a Nobel prize in economics for Kahneman.) Other techniques include Prediction Markets, which are structured as betting exchanges whose assets are tied to a specific event. Futures Studies, on the other hand, is an interdisciplinary field that examines the changes that have taken place in the past, along with those taking place today, in order to anticipate the future. It attempts to analyze the sources, patterns and causes of change in an effort to map possible futures.

Traffic Analysis was employed during World War II when it was discovered that radio communications could be analyzed to predict coming events without even having to decrypt the messages. If an infantry unit was located here, a tank battalion there, and an artillery unit here, certain patterns of communication almost always presaged troop movements. Later, the CIA and other intelligence agencies conscripted the idea and took it into new territory by using it to analyze, among other things, scientific publications. The number of repetitions of certain scientific terms, their connections to others, and the strength of those connections were displayed by using varying font sizes and line connectors which were output to large graphics plotters so the results could be pored over to determine not only the direction of research, thereby providing a glimpse of things to come, but also to determine which areas had "gone black", generally indicated by a sudden "hole" in a particular area.

All of these techniques attempt to supplant a blind, linear extrapolation of past events by using extant knowledge to inform our view of the future. Some require not only that the practitioner have knowledge of where the leading edge is at any given moment, but that he project his mind into the future to imagine the most probable developments that might ensue from that current state—a daunting task. Acquisition of the right type of knowledge is key, and often requires looking outside a narrow field of expertise. "Point of view is worth 80 IQ points," was the slogan at the Palo Alto Research Center (PARC), which gave the world the mouse, graphics user interface, laser printer and many other inventions.

Another way of looking at this was offered by the psychiatrist R.D. Laing, who once noted, "The range of what we think and do is limited by what we fail to notice. And because we fail to notice that we fail to notice there is little we can do to change

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until we notice how failing to notice shapes our thoughts and deeds." A bit convoluted, perhaps, but the point is made. So what are we failing to notice?

The current examination system does a very good job of educating actuaries with respect to modeling risks, especially those risks dealing with the asset side of the balance sheet. But the addition of so much material has meant that other subjects have been sacrificed. One of those is a comprehensive study of mortality and morbidity. While not as sexy as some of the financial material, mortality and morbidity are still the main risks assumed by both private and social insurance systems. *The Living to 100 and Beyond* series of symposiums has done a remarkably good job of exploring many of these mortality- and morbidity-related issues. (See *http://www.soa.org/livingto100monographs* for additional information.)

We need not be futurists to anticipate the direction of mortality and morbidity rates, but we most definitely need to be looking outside our area of expertise. We need, in fact, to be looking outside the area of traditional medicine. Medical science is clearly being transformed by the panoply of biotechnological sciences springing up in the wake of the Human Genome Project. The use of stem cells, cloning techniques, tissue engineering and rapid genetic analysis hold the promise of both improved health care and greater life expectancies. These advances, when coupled with new diagnostic instruments and improvements in pharmaceutical interventions, are sufficient in themselves to serve as harbingers of additional rounds of mortality improvements.

But there is a wild card in the deck, and that is research into the process of aging. This is the type of technology we were talking about earlier, the kind that is capable of generating a paradigm shift if it pans out.

It has been known since Clive McKay's work in the 1930s that caloric (or dietary) restriction (CR or DR) can increase both life expectancy and life span. M.H. Ross determined in 1972 that rats that were fed 30 percent fewer calories (under-nutrition without malnutrition) saw a doubling of life expectancy and an increase in life span of 30 percent. This work has been repeated in many other animals with similar results, and a wide range of theories have been put forth in an attempt to explain why this occurs. Early theories included developmental delay, reduced metabolic rate, decreased fat and inflammation, and glucocorticoid cascades. More recent theories have focused on a reduction in Reactive Oxygen Species (ROS), alterations in apoptosis (programmed cell death), protein turnover, decreased glucose and insulin levels, and other endocrinological changes. All these theories have either been shown not to be true or have yet to develop convincing experimental evidence that they are.

However, over the last several years an alternative explanation, the hormesis theory, has been developed that combines many aspects of these competing theories in a single, unified explanation, one of Kuhn's hallmarks for a paradigm shift. David Sinclair, of Harvard Medical School, says, "The theory states that the underlying mechanism of DR is the activation of a defense response that evolved to help organisms cope with adverse conditions. These defenses extend life span because they counteract the proximal causes of aging." This defense response appears to be very ancient and fundamental, which means that it likely has been conserved in many species throughout evolutionary time.

Sinclair was a student of Leonard Guarente's at MIT. The two of them worked together to investigate a family of genes called *sirtuins* that have an effect on the aging process. The SIR proteins that result from these genes are known to be involved in gene silencing, a regulatory process. SIR, in fact, stands for 'silent information regulator'. Guarente and Sinclair found that additional copies of the *sir2* gene in yeast and roundworms extend their life spans by 30 percent and 50 percent, respectively. (A brief note on scientific convention: genes are in lower-case italics while their protein products are non-italicized upper case.)

Additionally, they discovered that biological stressors, such as caloric restriction, increase the

activity of *sir2*, and that *sir2* is required in order for the life span to be extended. Further work showed that expression of the *sir2* gene was dependent upon a molecule called NAD. Biologists knew that NAD is connected to numerous metabolic reactions in many species. That meant that NAD could connect aging to metabolism and therefore to diet. Since it was already known that caloric restriction could have an impact on disease, that meant that *sir2* genes might have an impact on disease also.

Subsequently, the mammalian version of *sir2* was identified. It is known as *sirt1*, or "*sir2* homolog 1". There are at least seven different sirtuins in humans. The pathways by which these human versions achieve their effects are more complex than in simpler organisms, and the number of functions they perform is also greater.

Then an important discovery was made. In a 2003 *Nature* article, Sinclair and his collaborators published a paper describing a class of chemicals that could activate the *sirtuins*. These Sirtuin Activating Compounds, or STACs, include the much-vaunted resveratrol, an ingredient in red wine which has received much publicity over the last several years. About six months after the *Nature* article, Sinclair co-founded Sirtris with Cristoph Westphal, a Harvard Ph.D., MD and venture capitalist.

The purpose of Sirtris' research is not to extend the human life span though. For one thing, how would you prove efficacy to the FDA? It would involve extremely long clinical trials to establish something like that. Rather, the research is focused on delaying the onset of many of the diseases of old age. Any life extension peripheral to that would simply be a fortuitous side effect. The degenerative diseases they hope *sirtuins* will be able to treat include diabetes, heart disease, cancer and Alzheimer's.

Sirtris has developed two drugs so far that it hopes to bring to market, one a more powerful version of resveratrol that the company hopes will be successful in treating diabetic patients, the other a synthetic chemical a thousand times more powerful than resveratrol in terms of its ability to activate *sirtuins*. The first has already passed safety tests and the second is just beginning them. Lab mice fed resveratrol have shown doubled muscular endurance, lowered cholesterol and suppressed colon cancer. They have also exhibited strengthened bones, reduced cataracts, improved coordination and other health benefits.

But the really good news lies in the April, 2008 purchase of Sirtris for $720 million by GlaxoSmithKline, which paid a substantial premium to acquire it (the deal was struck at $22.50 per share for a stock trading at $12.00). Glaxo announced they intend to keep the Sirtris team intact, well paid, and enabled in terms of searching out drugs that will have a marketable impact on disease. This acquisition was good news because it demonstrates that Big Pharma is taking the science of aging seriously. Clearly, if they are willing to invest in this type of research, they must believe it has potential. More than likely, this will be the opening stage of a new wave of pharmaceutical research.

For decades the belief in the research community has been that the diseases of old age result from the process of aging—that is, the body's reduced capacity to fend them off. Treating the diseases themselves will not treat the underlying problem. If you learn how to slow aging, however, you will also slow the onset of those diseases.

Regardless of whether increased longevity results from this research, the big payoff lies in the potential of increased health expectancy. Ideally, we would all remain fit right up to the very end rather than endure years or decades of ill health prior to death. That's the issue from a personal standpoint. On a national level, however, Medicare costs threaten to swamp the federal budget. Right now, they are 3 percent of GDP, or 15 percent of federal expenditures. By 2020 and 2080 those figures rise to 4.5 percent / 22 percent and 11 percent / 53 percent, respectively. On a present value basis the Medicare gap amounts to over $36 trillion. (The above statistics and more can be found in "The Facts About Medicare" by Concerned Actuaries in the July / August 2008 issue of *Contingencies*.) Social Security costs are

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an issue also, but that's a demographic problem addressable by demographic solutions. Without intending to be dismissive of either the size of the problem or its complexities, if people live longer *healthy* lives, why should they retire at 65? (See "It's Time For A National Discussion On Retirement" by Mark Shemtob in that same issue.)

It's not a slam-dunk that the Sirtris research will pan out though. Remember all the earlier theories mentioned above about how caloric restriction works? This is pioneering work, and in a different context one wag noted, "Ah, yes. The pioneer. He's the guy way out ahead of the rest of the pack, lying face down in the mud with an arrow in his back." As with all drugs, the STACs may fail in clinical trials because of toxicity, side effects, lack of efficacy, etc. Also, the science is far from being settled. Debates over the details of caloric restriction and how these drugs achieve their effects (or even whether, in some cases) still rage. And as for extending life span, a recent study by Sinclair and de Cabo showed that, despite better health, resveratrol-fed mice did not live any longer than usual. So we will have to wait to find out whether these drugs work or not.

But it's clear that, after seven decades of scientific effort, research into the aging process is finally being taken seriously. Even if this particular drug fails, that research will continue, and eventually something will be found that does work. The reason that knowledge is power is because it suggests the means of control. As soon as we learn how something works, we begin trying to figure out how to make it do our bidding. Eventually we will discover enough about the aging process to learn how to slow it, so actuaries will need to follow this field carefully if we are not to be surprised by the future.

In the meantime, it would make a great deal of sense for the federal government to increase funding for this research. Investing millions to potentially save trillions doesn't seem like a difficult decision. Once understood in the proper quarters it would seem that only a failure of the imagination could result in such a gross oversight, and were that to occur it would be a grand mistake. But, as the economist John Kenneth Galbraith once noted, "If all else fails, one may always achieve immortality through spectacular error."

Gene Held, vice president at SCOR Global Life U.S. Re Insurance Co. in Plano, Texas, has been involved with mortality studies, underwriting, and claims for much of his career. As an actuary and financial planner, Held has published articles in On the Risk, Contingencies, *and* the North American Actuarial Journal. *His paper surveying aging research can be found at www.soa.org/library/monographs/life/living-to-100/2002/mono-2002-m-li-02-1-held.pdf. The views he expresses here are his own and do not necessarily represent the views of SCOR Global Life.*

Interview with Sujeeva Udayasiri Fernando – an Actuary in Sri Lanka

by Michael Watanabe

Michael Watanabe, ASA, is an actuarial analyst with Pacific Guardian Life Insurance. He can be reached at mwatanabe@pacificguardian.com.

On April 3, 2008, the Younger Actuaries Network (YAN) hosted a webcast entitled, "Breaking Away From the Curve: How to Excel Beyond Exams," where Rob Frasca and Larry Zimpleman shared their experiences and advice on progressing further in the actuarial career field. The webcast was a huge success, with over 80 sites participating, and an estimated total of 500 individuals tuning in for the webcast! Afterward, the SOA staff learned that the audience spanned not only the entire United States, from Hawaii to the East Coast, but to Sri Lanka as well! I had the pleasure of getting to know Sujeeva Fernando, an actuarial trainee with Janashakthi Insurance Company in Sri Lanka, and inquired about his thoughts and sentiments about the webcast and the actuarial profession as a whole.

MW: What's your background in the actuarial profession?

SF: I have about six months of experience in the industry. I currently work in the Life Department. There is no separate department for actuarial work, since that is done by the actuarial consultant. Prior to working at an insurance company, I worked as a lecturer in the Department of Mathematical Sciences at Wayamba University (WU) and presently work as a visiting lecturer for actuarial courses in the Department of Mathematics at the University of Colmbo and WU. After completing all the SOA preliminary exams by self study and with the help of Professor G.V. Ramanathan (Professor Emeritus, University of Chicago), I am now reading for the FAP modules.

MW: What is the actuarial community like in Sri Lanka?

SF: There are about 10 insurance companies in the market here. There are three associate-level members in the country: two from the UK and one from the United States, who are in the life and pension fields. There are also two fellows in Sri Lanka—one in the pension field and one in the life field. The actuarial community here is very small, and most are studying for the UK and Indian exams because of the difficulty of the SOA exams and the higher price of study materials and textbooks for the U.S. exams. The insurance industry is rapidly growing, though, and there is a huge demand for actuaries.

MW: How did you hear about the YAN webcast?
SF: Through the SOA Web site.

MW: How do you feel about webcasts and online seminars/participation for these topics?

SF: I like the idea of webcasts. Webcasts help to develop the "Global Village" concept in the actuarial field. It's a very attractive method of sharing knowledge, skills, attitude and experiences that an expert learns throughout his or her life. One of the key advantages of webcasts is that it allows the speaker and the audience to interact even though they may be thousands of miles away from each other. I think this type of program is extremely beneficial for participants who live in countries where the actuarial profession is not properly developed. Since I don't have foreign exposure in this field, and Sri Lanka does not have a sound actuarial environment, this type of knowledge-sharing program will help me improve my talents. Plus, I can share this knowledge with university students and industrial colleagues. This is the first time I have participated in an actuarial webcast … so THANK YOU!

The Personal Actuary

by Paul Richmond

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Until recently, actuaries have applied their knowledge and skills almost exclusively to addressing the problems associated with groups of individuals. Pension, life, and health actuaries have developed and applied rigorous mathematical models to estimate liabilities associated with large numbers of employees or insured individuals, determine the nominal value of assets needed to counterbalance the liability, and measure the risk associated with various strategies to secure assets compatible with the volatility of the determined liabilities. They've developed these models in the context of a comprehensive understanding of the patterns and rhythms of the free-market economy, the financial realities of regulations and controls, and the methods used to provide a social welfare safety net throughout the free world.

Over the past decade or so, a number of actuaries have begun to use these skills to help individuals identify and measure their own unique risks and to develop strategies that enable the individual to use his or her resources most effectively relative to those risks. Although there are no typical cases—each situation presents a unique set of issues and challenges—we offer the following example:

Mr. Smith's 80-year-old mother, who has $400,000 of assets, is in an assisted-living facility. She is relatively healthy but is on the brink of needing to move to skilled nursing care. She has fallen several times recently and has just begun to show some signs of dementia. Mr. Smith has no siblings and is his mother's sole heir. Half of his mother's assets are invested in CDs and half in a fixed annuity, paying 3.0 percent interest. His mother receives $15,000 a year from Social Security, and her annual living expenses are $50,000. He has the following questions for his personal actuary:

1. How long will his mother's assets last?
2. Should he invest her assets more aggressively?
3. And if he does so, how much longer will her assets last?

Because of his knowledge of the welfare safety net, the personal actuary incorporates the following information into his analysis.This information isn't commonly known by the public at large or even by most financial planners.

1. Because her husband served in the military during a time of war, Mrs. Smith will be entitled to a monthly benefit from Veterans Affairs once her assets fall below $80,000.
2. If she's medically qualified for skilled-nursing care and she runs out of money, the state Medicaid system will provide for Mrs. Smith's care.

The personal actuary develops a model to test various asset-allocation strategies associated with the facts presented above. These models show the following:

1. If the investment strategy isn't changed, Mrs. Smith's assets should last until she is 92 years old. VA benefits begin at age 90.
2. A more aggressive investment strategy, however, increases the duration of her funds by only one year, or until age 93. VA benefits don't begin until age 92.
3. The probability of an 80-year-old living to age 92 is only 33 percent, and to age 93, only 27 percent. Because her health is already compromised, the likelihood of Mrs. Smith's living to 92 or 93 is even less.

As a result of his analysis, the personal actuary concludes:

1. There is little downside risk associated with investing more aggressively. If the resulting asset volatility results in a more rapid consumption of assets, the social safety net will provide for Mrs. Smith's care at the same level she would receive had her assets not been depleted.
2. There is substantial upside potential. It's unlikely that Mrs. Smith will live more than a couple of years. The investment strategy shouldn't be based on the time horizon for Mrs. Smith's needs but rather on the retirement accumulation needs of her son.

The knowledge, skills and modeling processes the personal actuary used in this example are much

more comprehensive than what would be deployed by the typical financial planner. The financial planner may have arrived at the same answer but wouldn't have been able to explain the underlying dynamics. The personal actuary equips his client with a greater understanding of the levers that are working both for and against him, and the client is therefore able to make a more reasoned decision.

The problem for the personal actuary is that his work crosses over into an area that's subject to a high degree of regulatory supervision. Defining the personal actuary as a professional discipline, separate and apart from the financial industry, will be very challenging, if not impossible. The established regulatory environment severely limits a personal actuary from providing services directly to the public, unless he or she complies with the examination and regulatory requirements set forth by the government and other entities with regulatory authority. Personal actuaries who comply will certainly be able to practice; however, unless significant intervention occurs from the Society of Actuaries (SOA) and the American Academy of Actuaries, they may lose public identity as members of the actuarial profession.

Perhaps there is a role for the personal actuary in the back office of financial planning organizations, but it's unlikely that such institutions will allow personal actuaries to employ their actuarial skills or to advertise their actuarial credentials directly to the public. The more deeply embedded personal actuaries are within an organization, the more likely it will be that they can practice. But the more visible they become to individual clients, the more likely it will be that their employers will demand reliance on credentials associated with the financial world and discourage and even prohibit the use of actuarial designations.

A Call for Intervention

It's very apparent that an actuary, with a minor amount of additional training, has the skills necessary to practice comfortably within the financial sector. The profession readily acknowledges that actuaries should be trained in the financial regulatory environment. Some additional training is necessary in the tax implications of individual financial products. Also, estate-planning skills must be acquired.

We believe that the examination process necessary to become an investment adviser and to sell insurance and securities products is probably appropriate. The syllabus for these exams contains material about the regulatory environment that's not covered by the actuarial exam syllabus. However, the financial exams aren't all that difficult, and, compared to the actuarial exams, are rather easy. Therefore, completing these exams shouldn't present a significant obstacle.

The profession is, however, quite concerned about the loss of identity as an actuary. The skills we've acquired set us apart from most financial planners. Our skills are broader, more comprehensive, more analytical and more rigorously applied.

We should be able to maintain our credentials and use them as personal actuaries working in the financial arena. Nevertheless, unless some major changes occur, the financial sector won't accept our entry into this field. The risk for financial service firms is just too high. Therefore, personal actuaries need the help and support of governing actuarial bodies to help them gain that acceptance.

The SOA has commissioned a study to determine whether the skills of an actuary are sufficient to distinguish a personal actuary from a professional financial planner, and to determine whether the marketplace will accept and recognize the additional skills we bring to the table. This was a great first step. But if the personal actuary is to be a viable discipline, additional support and intervention from our governing and credentialing bodies will be necessary. In addition to the support already provided, the SOA and the Academy need to help in the following ways:

1. Initiate discussions with the Securities and Exchange Commission (SEC), the National Association of Securities Dealers (NASD), the National Association of Insurance Commissioners (NAIC), and the federal and state legislatures about giving actuaries the same status as lawyers, accountants, teachers,

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and engineers, who are acknowledged by law and regulation as having skills that are tangential and complementary to the financial sector.

2. Develop actuarial standards of practice that identify acceptable methods of practice for an actuary working closely with and/or within the financial sector. The purpose is to create a "supervisory" umbrella for financial actuaries similar to the supervisory requirements that exist in the financial world. The objective would be to reduce the anxiety that financial employers may have about supervising a profession for which they have limited or no expertise.

3. Develop a way for personal actuaries to acquire errors and omissions (E&O) insurance protection that complements the protection required by broker/dealer and registered investment adviser firms. Perhaps the SOA could initially serve as an "association" that will promote and/or sponsor E&O insurance protection for personal actuaries. In all likelihood, the SOA would command more attention to this issue within the insurance industry than individual actuaries acting alone.

Why the call for a greater level of intervention just when the actuarial profession seems to be on the threshold of accepting and promoting a new discipline, the personal actuary? The answer lies in a large dose of reality acquired by the accumulation of additional knowledge about the financial sector and its regulatory environment. If our credentialing bodies don't intervene and help obtain investment industry recognition of the profession, the personal actuary initiative could very well fail. Furthermore, as more and more actuaries are displaced as a result of the demise of defined benefit plans and the consolidation of life insurers, many will find a home within the financial sector and may very well relinquish their credentials as an actuary. The result will be a decline in membership and relevance for the actuarial profession.

The Regulatory Environment

The financial industry is heavily regulated by the SEC, the NASD, the NAIC and the investment administrators and insurance commissioners for each of the 50 states. Laws established by Congress and the states, subject to the rule-making and authority of the identified regulators, cover essentially everything we've defined as a role for the personal actuary. After sitting for many of the examinations necessary to comply with the regulators, I've drawn the following conclusions about actuaries and their ability to work in the financial sector:

1. *We're not recognized as legitimate investment professionals.* An actuary isn't recognized as a legitimate professional adviser within the financial services industry.
2. *We must pass more exams to work in the financial sector.* In order to provide advice that is even remotely related to investments and securities, an actuary must pass a series of examinations established by the NASD, state administrators and state insurance commissioners.
3. *We must subject ourselves to the supervisory authority of the financial services industry.* Once an actuary passes the necessary examinations, he or she must affiliate with a broker/dealer and a registered investment adviser firm. The broker/dealer and the adviser firm must provide comprehensive supervision of whatever work is then performed by the actuary.
4. *We probably will lose our identity as an actuary.* It's not uncommon for the supervisory firm to prohibit an actuary from advertising his or her actuarial credentials. Supervisory firms are fearful that the use of credentials other than those related to the financial sector might somehow mislead the public. Lawyers, accountants, teachers and engineers are exceptions; by law, these professions are specifically permitted to retain their unique professional identities. The primary concern of supervisory firms is that they're not equipped to monitor and review the work and analyses performed by an actuary. Allowing the actuary to advertise his actuarial credentials may lead the public to believe that the professional is being supervised when, in fact, he's not.

To help our overall understanding, let's first identify and define the professionals who are

recognized by the financial industry. I'll do this generically, referring to the examinations required by the regulating authorities. Next, I'll summarize some of the major rules that pertain to the identified financial professionals. I'll then give some observations about the regulatory environment for professionals. And finally, I'll review the supervisory activities required within the financial sector and how they can lead to the loss of identity as an actuary.

Financial Professionals

> *Investment adviser.* SEC Release IA-1092 issued in October 1987 defines an investment adviser as anyone who provides investment advice, reports, or analyses with respect to securities, is in the business of providing advice or analyses, and receives compensation, directly or indirectly, for these services.

The SEC further states that the definition includes persons who offer investment advice for compensation, such as financial planners, pension consultants, and sports and entertainment representatives.

An individual who advises clients to select among investing in real estate, intangibles or other assets is an investment adviser. An individual who advises clients about budgeting their income is an investment adviser. An individual who advises a client regarding the selection from a variety of financial products, including securities, insurance products and real estate is an investment adviser. An individual doesn't even have to recommend any specific security to be considered an investment adviser. Simply advising on classes of investments makes an individual an investment adviser.

A person who receives any economic benefit as a result of providing investment advice as defined above is an investment adviser. This includes fees, commissions or salary.

To become investment advisers, individuals must pass the Series 65 and Series 63 exams developed and administered by the NASD. Alternatively, they may pass the Series 66 exam.

> *Securities salesperson.* A securities salesperson must pass either the Series 6 and Series 63 exams or the Series 7 and Series 63 exams in order to sell investment securities. A person with a Series 6

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license may sell mutual funds and variable insurance and annuity products. A Series 7 licensee may also sell stocks and bonds.

> *Insurance adviser and salesperson.* The sale of insurance products and the giving of advice on these products are regulated by the insurance commissioners of the individual states. The commissioners are administering insurance laws passed by individual state legislatures. These laws are based on model legislation developed by the NAIC.

Although rules vary some from state to state, individuals are generally prohibited from explaining or advising on an insurance product unless they're licensed insurance producers.

Ironically, in many states, actuaries can design an insurance product and can help establish underwriting standards for an insurance company, but they're prohibited from advising a client about the provisions of an insurance contract.

To become a licensed producer, an individual must pass an insurance examination developed by the commissioner of the state in which the prospective insurance adviser or salesperson resides. Other states will honor that exam if the adviser and/or salesperson requests and pays for an out-of-state registration. The adviser and/or salesperson may become licensed to advise or sell just life and annuity products, just health insurance products (medical insurance, disability insurance and longterm care insurance), or both.

Authorities and Restrictions

Financial professionals receive permission to do certain things and have limitations placed on them. Some of the rules pertaining to these authorities and limitations are summarized below:

1. An insurance salesperson must obtain sufficient information from the prospective consumer to determine that the insurance product being sold is financially suitable for the client.
2. A securities salesperson must obtain sufficient information from the prospective consumer to determine that the security being sold is financially suitable for the client.
3. An investment adviser must obtain sufficient information from the client to ensure that the advice provided is suitable to the financial needs and circumstances of the client.
4. An insurance salesperson must determine only if the insurance product is suitable for the client. He may receive commissions only on the sale of the product. He may not prepare a comprehensive financial plan for his client because if he does so, he is an investment adviser. He may not charge a fee. He has no obligation to disclose the commission he receives to his client.
5. A securities salesperson must determine only if the security is suitable for the client. She may receive commissions only on the sale of the product. She may not prepare a comprehensive financial plan for her client because if she does so, she is an investment adviser. She may not charge a fee. She has no obligation to disclose her commission to her client.
6. The basis for an investment adviser's work is a comprehensive financial plan. He may charge a fee for his work and for his advice. If he is properly licensed to do so, he may also sell insurance products and securities to implement the financial plan he's developed. However, if he sells insurance and securities products and services in addition to the development of the financial plan, he must disclose his commissions to his client.

Observations

From the perspective of someone new to the financial sector, the rules and regulations governing the industry seem to encourage the sale of financial products and services without ensuring a comprehensive understanding of the financial and personal goals of the client. Although the regulatory authorities would probably dispute this conclusion, I believe that the suitability standard for salespeople is rather soft. Salespeople can perform a cursory suitability review, ask a

dozen questions or so, and based on the answers provided, decide on the suitability of a product and make a sale. They're under no obligation to disclose the commissions they receive as a result of the sale.

On the other hand, the investment adviser performs a much more comprehensive analysis. It's quite likely that an adviser will discover that a specific financial product is totally unsuitable, whereas the salesperson, working with the same client, would have concluded that the product was entirely suitable. The adviser does a much more in-depth analysis and develops a much more rational basis for suitability. But the adviser must disclose all the income he receives for the project.

Isn't this a bit backwards? The person who does a better job of determining suitability (the adviser) has to disclose his income, while the salesperson doesn't. The regulators' position, however, is that that adviser, because she knows more, has a greater potential for a conflict of interest. The additional knowledge gives the adviser the ability to tailor her recommendations to products and services that will produce the greatest amount of income. The adviser has the ability to exert significantly more influence on clients and the decisions they make.

The salesperson is merely a "clerk in the store," explaining the benefits and provisions of the product offerings. He has a duty not to sell a product that would be clearly unsuitable, but he's not placing himself in a position of trust. He's obligated to put the client's interest above his own, but he's not obligated to inquire too deeply to rule out reasons why the product may be unsuitable. Clients retain considerable responsibility for determining for themselves that the financial product satisfies a need that they themselves have identified.

It's the actuary's knowledge of the fundamental principles of insurance and the basic strategies underlying product designs that gives him the ability to help individuals understand policy language features and the relative merits of individual provisions and riders.

Supervision and the Loss of Actuarial Identity

The purpose of regulation is to protect the public from unscrupulous people and fraudulent behaviors. As a result, registered investment adviser firms are very cautious about what they'll permit their investment advisers to do. They're required to review all work performed by their representatives to ensure that the advice, recommendations, and subsequent sales of products and services are given with the best interests of the client in mind. Investment adviser firms have two major concerns:

1. They are themselves subject to active and aggressive supervision by federal and/or state reglators. They're subject to periodic audits and surprise audits. And they must be able to demonstrate that their representatives, or advisers, are in compliance with the rules.
2. They are very concerned about lawsuits. If they don't provide appropriate supervision, they're subject not only to censure from the regulators but also to significant monetary awards payable to clients who have been damaged.

Regulations require all investment advisers to report all outside business activities to their supervising firm. The purpose of this is to alert the firm to any potential conflict of interest the adviser may have. Investment adviser firms want their representatives to be substantially committed to giving investment advice. Although they won't be too concerned about a person with a business activity unrelated to the financial industry (for example, an adviser who runs a dog kennel), they do become concerned when that outside activity consumes a substantial portion of the adviser's time. And they get particularly concerned when the outside business activity is closely related to the financial sector.

An adviser who identifies actuarial services as an outside business activity will very likely draw considerable scrutiny from the investment adviser firm because it's so closely related.

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The firm is concerned that the public may not be able to distinguish the investment advice an actuary provides from an investment adviser's advice. While the firm can supervise the investment advice, it doesn't have the resources or expertise to supervise the actuarial services.

An investment adviser firm isn't apt to refuse to hire a fellow of the SOA merely because he's an actuary. Such a firm may even welcome the additional knowledge and skill an actuary brings to the table. However, the firm must exercise considerable caution about how the actuary is used with the public.

First, it must either exercise regulatory supervision of the actuary's work or disclaim supervision of the actuarial component of his work. Investment adviser firms generally can't supervise the actuarial work because they aren't qualified to do so. On the other hand, it's difficult if not impossible to disclaim the actuarial component of a project because that component becomes so intertwined with the components that can be properly supervised.

A client may experience a poor outcome for a number of reasons, many of which have little to do with the advice given. However, if a client can show the advice was based on analyses prepared by an actuary and the work of the actuary wasn't properly disclaimed or supervised, the firm may be subject to censure by the regulatory bodies and civil liability for the poor outcome. In light of this, some investment adviser firms have put the following restrictions on their advisers:

> Advisers must use financial planning software approved by the firm.
> Advisers may not develop their own spreadsheets, use software developed by the advisers themselves or use software developed by other sources.
> Advisers may not use their actuarial credentials on any letterhead, business cards or advertising that also identifies the firm.

These restrictions clearly dilute personal actuaries' ability to maintain their professional identities as actuaries.

Personally, I'm not averse to embracing the financial sector and relinquishing my actuarial identity if absolutely necessary.

I would still apply the knowledge and discipline gained through becoming and practicing as an actuary; I just wouldn't call myself one.

But I'm proud of my accomplishments as an actuary and would like to retain my identity as one. I firmly believe that our skills are readily transferable to the financial sector. I also believe that a personal actuary delivers skill sets and products that are distinctly different from those offered by financial planners.

I want to work in the financial world, but I also want to retain my identity as an actuary. And I believe that my colleagues who are personal actuaries want the same. Therefore, we are calling on the actuarial profession to help us.

Perhaps fundamental to the definition of a personal actuary is the definition of an actuary. Some view the actuary as a highly skilled mathematician. My view is that the actuary is a comprehensive problem solver, applying a broad base of knowledge of economic systems, using mathematical models and techniques to identify, assess and manage risk.

If the actuary is defined by the narrower first definition, the opportunities for personal actuarial work are very limited. If the actuary is more broadly defined, however, the opportunities can be quite extensive.

Paul Richmond is a practicing personal actuary and enrolled actuary in Bethel Park, Pa. He is a registered representative under the NASD Series 6 exam, a registered investment adviser representative (Series 65 exam), and a licensed insurance producer in the state of Pennsylvania for life, annuity and health insurance products. Though he has been a member of the SOA's Personal Actuary Task Force for two years, the opinions and calls for action in the article are Mr. Richmond's and don't necessarily reflect those of other task force members, the SOA or the Academy.

Teaching ERM in Nairobi, Kenya

by Shiraz Jetha

Actuaries without Frontiers (AWF), a section of the International Actuarial Association (IAA), would appreciate hearing from individuals interested in volunteering to conduct an introductory two- to three-week course into enterprise risk management (ERM) and economic capital concepts at two universities in Kenya—the Nairobi and JK Universities. The course, which will also include two half-day industry seminars aimed at senior management and regulatory staff, will take place between April-June 2009 and is held under the auspices of The Actuarial Society of Kenya (TASK). Travel and hospitality-related expenses would be covered.

AWF is involved in enabling the provision of actuarial resources to emerging countries on a short-term, voluntary basis. It currently has around 200 members from 22 countries—the majority of whom are from the United States, United Kingdom, Canada, France, South Africa and Japan. Volunteers for this and other future assignments will be selected from the section's membership.

Kenya is a country of 34 million people on the eastern coast of Africa (on the equator) and is well-known for its beautiful game parks and beaches. Mount Kenya is a 13,000 ft climb done over three days, while Mt Kilimanjaro (19,000 ft) across in Tanzania is also a popular climb. Beyond the opportunity to visit a country and enjoy its resources, the volunteer will also have the satisfaction of contributing to the development of the profession.

Kenya has some 40 insurance companies, four reinsurers and a few local consulting firms. P&C coverage generates the majority of premium revenues with retirement savings, life insurance and health products, especially those that are employer-based, also important in the sector. Historically, regulation of the insurance sector came under the purview of the Insurance Commissioner's office; however in 2007, a new regulatory framework was established through an independent authority.

TASK, which was formed in the early '90s, assumed a new mandate in 2007 to organize and strengthen the profession in the country. It hopes to develop an important regional presence, and

as such is interested in building up its expertise in newer actuarial science developments, such as ERM, modeling of natural disasters, climate change issues, etc. There are currently eight practicing actuaries in Kenya, five of whom are fellows of leading actuarial organizations such as the Institute of Actuaries. Several new fellows are expected in the next three years. The actuarial science programs at the two universities are generating significant interest in the student community.

At this point we welcome your response if this opportunity is of interest to you. Please e-mail Pritesh Modi at pmodi@nfs.bm or Shiraz Jetha at sjetha@nooractconsulting.com indicating your interest level (High, Medium or Low). As membership of AWF will be required, individuals interested should join the AWF section if they have not already done so.

Shiraz Jetha, FSA, FCIA, MAAA, is an actuary at the Office of Insurance Commissioner in Washington State. He can be reached at shirazj@oic.wa.gov.

Update on Younger Actuaries Network Events

by Mark Yu and Jennie McGinnis

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YAN Webcast - Breaking Away from the Curve: How to Excel Beyond Exams

On April 3, 2008 the Younger Actuaries Network (YAN) hosted a webcast entitled "Breaking Away from the Curve: How to Excel Beyond Exams." The webcast was designed to enable participants to identify and capitalize on opportunities to become successful actuaries beyond the exam process. Time was spent on two fronts with Rob Frasca of Ernst & Young focusing on how to succeed in technical and specialized roles, while Larry Zimpleman of Principal discussed finding success as an actuary in a managerial position.

The 90-minute webcast was well-received by the more than 500 estimated participants. The majority surveyed considered the topic to be relevant and most comments reflected the opinion that the perspectives shared by Rob and Larry were the most useful aspects of the presentation. Based on the large number of questions asked during the Question & Answer period it is believed that the audience was truly engaged by the topic and speakers.

Columbia University Networking Event

On April 30, 2008 YAN hosted a networking event at Columbia University in New York. This event provided an opportunity for local college actuarial students to network and learn more about the actuarial profession. Mark Yu and Joanna Chu presented on behalf of YAN and shared information on the YAN subsection, U.S. actuarial job market, various actuarial employment opportunities and skills needed to become a successful actuary.

The final Question & Answer period was well received; students wanted to know more about the actuarial career paths and how to prepare themselves for the challenge of becoming an FSA. Based on the evaluation results, the students appeared to find the event informative and beneficial for them to make decisions on their careers. Mark and Joanna did a great job of inspiring these "younger" actuaries!!

Recap of AOF Section Sessions at 2008 Annual Meeting

The Actuary of the Future Section sponsored several sessions at the 2008 SOA Annual Meeting October 19 - 22 in Orlando, Florida. Below is a summary of sessions we sponsored.

Actuaries Without Borders*

Presenters: Shiraz Jetha and Fazli Datoo

This breakfast session explored the possibilities of getting actuaries involved with nonprofit organizations like the United Nations and Red Cross, whether in terms of career-expanding opportunities or as an avenue for actuaries to take up short-term assignments on a volunteer basis.

The session consisted of two parts: a panel discussion, followed by an open town hall-type discussion. The panel consisted of a practicing actuary with experience in these kinds of assignments and a member of a nonprofit group who spoke about the need for actuarial skills in this arena.

The town hall-type discussion gave the audience a chance to present their views on this topic, including asking questions of the panelists, as well as the opportunities and challenges that actuaries who are interested in pursuing these assignments can expect to face.

Risk Management in Nontraditional Arenas: Expanding our Risk Horizons*

Presenters: Karen DeToro, Venu Nagali and Sameer Vittal
Moderator: Frank Sabatini

This session was for actuaries looking to expand their horizons, especially in the field of risk management. It explored nontraditional industries where actuarial skills can be applied in new roles.

The new CERA credential is an integral part of the effort to move new and experienced practitioners into the risk management frontier. This session explored nontraditional industries for risk management practices and explored what it means to be a risk manager, what qualifications are needed and how actuarial skills serve the needs of those industries.

Capital Market Innovation*

Presenters: William Cassano, Guy Coughlan and Charles Laplante

Experts shared their views on the current and potential life settlement and premium financing marketplace with a special focus on the implication for the insurance industry and the role actuaries can play.

Speakers shared their views from capital markets on the life settlement and premium financing market, covering the topics of:

- Current and potential life settlement and premium financing marketplace;
- Who invests, the motivation for the investment, and supply and demand;
- Innovative products—longevity index, swaps, securitization;
- Strategic impact on the insurers/reinsurers; and
- Implications for the insurance industry and the role actuaries can play.

Where are Technology Advances Taking the Insurance Industry ... and its Actuaries?

Presenters: Jym Barnes, Brad Cunningham, Dave Dorans, Jay M. Jaffe and Kevin J. Pledge
Moderator: Ben H. Wolzenski

This session presented several leading-edge technology applications that could impact the insurance industry and its actuaries. Presenters also used technology to obtain audience feedback.

This session included:

- Presentation and demonstration of technology/applications that could significantly affect the insurance industry and/or the role of actuaries in the insurance industry.
- Opportunity for the audience to provide feedback, using consensor voting equipment, on the potential applicability to their company and/or potential industry impact of technology/applications demonstrated.

The audience got to see a demonstration of technology/applications and ask questions in a post-session reception hosted by presenters.

* Indicates that the Actuary of the Future section is the lead sponsor for the session.

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This newsletter is free to section members. Current-year issues are available from the Communications Department. Back issues of section newsletters have been placed in the SOA library and on the SOA Web site: (*www.soa.org*). Photocopies of back issues may be requested for a nominal fee.

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